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Report No. 95-01-00043

January 18, 1995

Project: Certainteed / Maline Creek

P. O. No. 99630

TDD #T07-9410-083

Site: Maline Creek
ID # M00980631162
Break: 2,3
Other: EEC
1-18-95

Determination of asbestos content by transmission electron microscopy on sixteen (16) air monitoring cassettes submitted on January 6, 1995.

Ecology & Environment, Inc.
Cloverleaf Bldg. 3, 6405 Metcalf
Overland Park, KS 66202

Attn: Ms. Audra Gier

TEST REPORT

The analytical results for the samples submitted are reported on the following pages. The table below contains a summary of results:

SUMMARY OF ANALYTICAL RESULTS:

<u>Sample Identification</u>	<u>E.E.C. Lab No.</u>	<u>Sample Volume (liters)</u>	<u>Asbestos Structures (Struct./cc)</u>	<u>Asbestos Structures (Struct./mm²)</u>
MLC-001	7831	1389	*ND	0.0
MLC-002	7832	1372	*ND	0.0
MLC-003	7833	1416	*ND	0.0
MLC-004	7834	1260	*ND	0.0
MLC-005	7835	1374	*ND	0.0
MLC-006	7836	1374	**NSS	35.8
MLC-007	7837	1374	**NSS	17.9
MLC-008	7838	1368	**NSS	17.9
MLC-009	7839	1362	*ND	0.0
MLC-010	7840	1359	*ND	0.0
MLC-011	7841	1329	*ND	0.0
MLC-012	7842	1314	*ND	0.0
MLC-013	7843	N/A	*ND	0.0
MLC-014	7844	N/A	*ND	0.0
MLC-015	7845	N/A	*ND	0.0
MLC-016	7846	1206	*ND	0.0

* None Detected

** Not Statistically Significant (One to four asbestos structures detected)

07K.F 30290525 2.0
Barcode
Superfund

04/00



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Report No.: 95-01-00043

Sample Identification: MLC-001, Top Of Landfill

EEC Lab No.: 7831

ANALYTICAL INFORMATION:

Sample volume, liters:	1389
Filter type:	MCE, 0.45 micrometers
Total area analyzed, mm ² :	0.0558
Effective filter area, mm ² :	385
Average grid opening area, mm ² :	0.00930
No. of grid openings analyzed:	6
Asbestos concentration, structures/mm ² :	0.0
Analytical sensitivity structures/cc:	0.0050
Asbestos concentration, structures/cc:	*ND
95% confidence interval, structures/cc:	0 - 0.018

* None Detected

NOTE: When less than five (5) asbestos structures are detected, the airborne asbestos concentration is best represented by a range of possible values. Refer to the 95% confidence interval.

ANALYTICAL RESULTS:

Structure <u>Composition</u>	<u>Number of structures of each type</u>				<u>Total</u>
	<u>Fibers</u>	<u>Bundles</u>	<u>Clusters</u>	<u>Matrices</u>	
Chrysotile	0	0	0	0	0
Amphibole	0	0	0	0	0

Structure <u>Composition</u>	<u>Length of asbestos structures</u>	
	<u>< 5 micrometers</u>	<u>≥ 5 micrometers</u>
Chrysotile	0	0
Amphibole	0	0



Report No.: 95-01-00043

Sample Identification: MLC-002, S.E. Of Branch Metals

EEC Lab No.: 7832

ANALYTICAL INFORMATION:

Sample volume, liters:	1372
Filter type:	MCE, 0.45 micrometers
Total area analyzed, mm ² :	0.0558
Effective filter area, mm ² :	385
Average grid opening area, mm ² :	0.00930
No. of grid openings analyzed:	6
Asbestos concentration, structures/mm ² :	0.0
Analytical sensitivity structures/cc:	0.0050
Asbestos concentration, structures/cc:	*ND
95% confidence interval, structures/cc:	0 - 0.019

* None Detected

NOTE: When less than five (5) asbestos structures are detected, the airborne asbestos concentration is best represented by a range of possible values. Refer to the 95% confidence interval.

ANALYTICAL RESULTS:

Structure <u>Composition</u>	<u>Number of structures of each type</u>				<u>Total</u>
	<u>Fibers</u>	<u>Bundles</u>	<u>Clusters</u>	<u>Matrices</u>	
Chrysotile	0	0	0	0	0
Amphibole	0	0	0	0	0

Structure <u>Composition</u>	<u>Length of asbestos structures</u>	
	<u>< 5 micrometers</u>	<u>≥ 5 micrometers</u>
Chrysotile	0	0
Amphibole	0	0



Report No.: 95-01-00043

Sample Identification: MLC-003, SW Parking Lot

EEC Lab No.: 7833

ANALYTICAL INFORMATION:

Sample volume, liters:	1416
Filter type:	MCE, 0.45 micrometers
Total area analyzed, mm ² :	0.0558
Effective filter area, mm ² :	385
Average grid opening area, mm ² :	0.00930
No. of grid openings analyzed:	6
Asbestos concentration, structures/mm ² :	0.0
Analytical sensitivity structures/cc:	0.0049
Asbestos concentration, structures/cc:	*ND
95% confidence interval, structures/cc:	0 - 0.018

* None Detected

NOTE: When less than five (5) asbestos structures are detected, the airborne asbestos concentration is best represented by a range of possible values. Refer to the 95% confidence interval.

ANALYTICAL RESULTS:

Structure <u>Composition</u>	<u>Number of structures of each type</u>				<u>Total</u>
	<u>Fibers</u>	<u>Bundles</u>	<u>Clusters</u>	<u>Matrices</u>	
Chrysotile	0	0	0	0	0
Amphibole	0	0	0	0	0

Structure <u>Composition</u>	<u>Length of asbestos structures</u>	
	<u>< 5 micrometers</u>	<u>≥ 5 micrometers</u>
Chrysotile	0	0
Amphibole	0	0



Report No.: 95-01-00043

Sample Identification: MLC-004, West Enc. Commons

EEC Lab No.: 7834

ANALYTICAL INFORMATION:

Sample volume, liters:	1260
Filter type:	MCE, 0.45 micrometers
Total area analyzed, mm ² :	0.0651
Effective filter area, mm ² :	385
Average grid opening area, mm ² :	0.00930
No. of grid openings analyzed:	7
Asbestos concentration, structures/mm ² :	0.0
Analytical sensitivity structures/cc:	0.0047
Asbestos concentration, structures/cc:	*ND
95% confidence interval, structures/cc:	0 - 0.017

* None Detected

NOTE: When less than five (5) asbestos structures are detected, the airborne asbestos concentration is best represented by a range of possible values. Refer to the 95% confidence interval.

ANALYTICAL RESULTS:

Structure <u>Composition</u>	<u>Number of structures of each type</u>				<u>Total</u>
	<u>Fibers</u>	<u>Bundles</u>	<u>Clusters</u>	<u>Matrices</u>	
Chrysotile	0	0	0	0	0
Amphibole	0	0	0	0	0

Structure <u>Composition</u>	<u>Length of asbestos structures</u>	
	<u>< 5 micrometers</u>	<u>≥ 5 micrometers</u>
Chrysotile	0	0
Amphibole	0	0



Report No.: 95-01-00043

Sample Identification: MLC-005, West Enc. Commons

EEC Lab No.: 7835

ANALYTICAL INFORMATION:

Sample volume, liters:	1374
Filter type:	MCE, 0.45 micrometers
Total area analyzed, mm ² :	0.0558
Effective filter area, mm ² :	385
Average grid opening area, mm ² :	0.00930
No. of grid openings analyzed:	6
Asbestos concentration, structures/mm ² :	0.0
Analytical sensitivity structures/cc:	0.0050
Asbestos concentration, structures/cc:	*ND
95% confidence interval, structures/cc:	0 - 0.019

* None Detected

NOTE: When less than five (5) asbestos structures are detected, the airborne asbestos concentration is best represented by a range of possible values. Refer to the 95% confidence interval.

ANALYTICAL RESULTS:

<u>Structure Composition</u>	<u>Number of structures of each type</u>				
	<u>Fibers</u>	<u>Bundles</u>	<u>Clusters</u>	<u>Matrices</u>	<u>Total</u>
Chrysotile	0	0	0	0	0
Amphibole	0	0	0	0	0

<u>Structure Composition</u>	<u>Length of asbestos structures</u>	
	<u>< 5 micrometers</u>	<u>≥ 5 micrometers</u>
Chrysotile	0	0
Amphibole	0	0



Report No.: 95-01-00043

Sample Identification: MLC-006, Center Of Commons

EEC Lab No.: 7836

ANALYTICAL INFORMATION:

Sample volume, liters:	1374
Filter type:	MCE, 0.45 micrometers
Total area analyzed, mm ² :	0.0558
Effective filter area, mm ² :	385
Average grid opening area, mm ² :	0.00930
No. of grid openings analyzed:	6
Asbestos concentration, structures/mm ² :	35.8
Analytical sensitivity structures/cc:	0.0050
Asbestos concentration, structures/cc:	**NSS
95% confidence interval, structures/cc:	0 - 0.036

** Not Statistically Significant (One to four structures detected)

NOTE: When less than five (5) asbestos structures are detected, the airborne asbestos concentration is best represented by a range of possible values. Refer to the 95% confidence interval.

ANALYTICAL RESULTS:

<u>Structure Composition</u>	<u>Number of structures of each type</u>				<u>Total</u>
	<u>Fibers</u>	<u>Bundles</u>	<u>Clusters</u>	<u>Matrices</u>	
Chrysotile	0	0	0	2	2
Amphibole	0	0	0	0	0

<u>Structure Composition</u>	<u>Length of asbestos structures</u>	
	<u>< 5 micrometers</u>	<u>≥ 5 micrometers</u>
Chrysotile	2	0
Amphibole	0	0



Report No.: 95-01-00043

Sample Identification: MLC-007, NE Commons

EEC Lab No.: 7837

ANALYTICAL INFORMATION:

Sample volume, liters:	1374
Filter type:	MCE, 0.45 micrometers
Total area analyzed, mm ² :	0.0558
Effective filter area, mm ² :	385
Average grid opening area, mm ² :	0.00930
No. of grid openings analyzed:	6
Asbestos concentration, structures/mm ² :	17.9
Analytical sensitivity structures/cc:	0.0050
Asbestos concentration, structures/cc:	**NSS
95% confidence interval, structures/cc:	0 - 0.028

** Not Statistically Significant (One to four structures detected)

NOTE: When less than five (5) asbestos structures are detected, the airborne asbestos concentration is best represented by a range of possible values. Refer to the 95% confidence interval.

ANALYTICAL RESULTS:

Structure <u>Composition</u>	<u>Number of structures of each type</u>				<u>Total</u>
	<u>Fibers</u>	<u>Bundles</u>	<u>Clusters</u>	<u>Matrices</u>	
Chrysotile	0	0	0	1	1
Amphibole	0	0	0	0	0

Structure <u>Composition</u>	<u>Length of asbestos structures</u>	
	<u>< 5 micrometers</u>	<u>≥ 5 micrometers</u>
Chrysotile	1	0
Amphibole	0	0



Report No.: 95-01-00043

Sample Identification: MLC-008, Demo Area

EEC Lab No.: 7838

ANALYTICAL INFORMATION:

Sample volume, liters:	1368
Filter type:	MCE, 0.45 micrometers
Total area analyzed, mm ² :	0.0558
Effective filter area, mm ² :	385
Average grid opening area, mm ² :	0.00930
No. of grid openings analyzed:	6
Asbestos concentration, structures/mm ² :	17.9
Analytical sensitivity structures/cc:	0.0050
Asbestos concentration, structures/cc:	**NSS
95% confidence interval, structures/cc:	0 - 0.028

** Not Statistically Significant (One to four structures detected)

NOTE: When less than five (5) asbestos structures are detected, the airborne asbestos concentration is best represented by a range of possible values. Refer to the 95% confidence interval.

ANALYTICAL RESULTS:

Structure <u>Composition</u>	<u>Number of structures of each type</u>				<u>Total</u>
	<u>Fibers</u>	<u>Bundles</u>	<u>Clusters</u>	<u>Matrices</u>	
Chrysotile	0	0	0	1	1
Amphibole	0	0	0	0	0

Structure <u>Composition</u>	<u>Length of asbestos structures</u>	
	<u>< 5 micrometers</u>	<u>=> 5 micrometers</u>
Chrysotile	1	0
Amphibole	0	0



Report No.: 95-01-00043

Sample Identification: MLC-009, 941 Marias Back Yd.

EEC Lab No.: 7839

ANALYTICAL INFORMATION:

Sample volume, liters:	1362
Filter type:	MCE, 0.45 micrometers
Total area analyzed, mm ² :	0.0651
Effective filter area, mm ² :	385
Average grid opening area, mm ² :	0.00930
No. of grid openings analyzed:	7
Asbestos concentration, structures/mm ² :	0.0
Analytical sensitivity structures/cc:	0.0043
Asbestos concentration, structures/cc:	*ND
95% confidence interval, structures/cc:	0 - 0.016

* None Detected

NOTE: When less than five (5) asbestos structures are detected, the airborne asbestos concentration is best represented by a range of possible values. Refer to the 95% confidence interval.

ANALYTICAL RESULTS:

Structure <u>Composition</u>	<u>Number of structures of each type</u>				<u>Total</u>
	<u>Fibers</u>	<u>Bundles</u>	<u>Clusters</u>	<u>Matrices</u>	
Chrysotile	0	0	0	0	0
Amphibole	0	0	0	0	0

Structure <u>Composition</u>	<u>Length of asbestos structures</u>	
	<u>< 5 micrometers</u>	<u>≥ 5 micrometers</u>
Chrysotile	0	0
Amphibole	0	0



Report No.: 95-01-00043

Sample Identification: MLC-010, 925 Marias Front Yd.

EEC Lab No.: 7840

ANALYTICAL INFORMATION:

Sample volume, liters:	1359
Filter type:	MCE, 0.45 micrometers
Total area analyzed, mm ² :	0.0651
Effective filter area, mm ² :	385
Average grid opening area, mm ² :	0.00930
No. of grid openings analyzed:	7
Asbestos concentration, structures/mm ² :	0.0
Analytical sensitivity structures/cc:	0.0044
Asbestos concentration, structures/cc:	*ND
95% confidence interval, structures/cc:	0 - 0.016

* None Detected

NOTE: When less than five (5) asbestos structures are detected, the airborne asbestos concentration is best represented by a range of possible values. Refer to the 95% confidence interval.

ANALYTICAL RESULTS:

<u>Structure Composition</u>	<u>Number of structures of each type</u>				
	<u>Fibers</u>	<u>Bundles</u>	<u>Clusters</u>	<u>Matrices</u>	<u>Total</u>
Chrysotile	0	0	0	0	0
Amphibole	0	0	0	0	0

<u>Structure Composition</u>	<u>Length of asbestos structures</u>	
	<u>< 5 micrometers</u>	<u>≥ 5 micrometers</u>
Chrysotile	0	0
Amphibole	0	0



Report No.: 95-01-00043

Sample Identification: MLC-011, Ball Field

EEC Lab No.: 7841

ANALYTICAL INFORMATION:

Sample volume, liters:	1329
Filter type:	MCE, 0.45 micrometers
Total area analyzed, mm ² :	0.0651
Effective filter area, mm ² :	385
Average grid opening area, mm ² :	0.00930
No. of grid openings analyzed:	7
Asbestos concentration, structures/mm ² :	0.0
Analytical sensitivity structures/cc:	0.0044
Asbestos concentration, structures/cc:	*ND
95% confidence interval, structures/cc:	0 - 0.016

* None Detected

NOTE: When less than five (5) asbestos structures are detected, the airborne asbestos concentration is best represented by a range of possible values. Refer to the 95% confidence interval.

ANALYTICAL RESULTS:

Structure <u>Composition</u>	<u>Number of structures of each type</u>				<u>Total</u>
	<u>Fibers</u>	<u>Bundles</u>	<u>Clusters</u>	<u>Matrices</u>	
Chrysotile	0	0	0	0	0
Amphibole	0	0	0	0	0

Structure <u>Composition</u>	<u>Length of asbestos structures</u>	
	<u>< 5 micrometers</u>	<u>≥ 5 micrometers</u>
Chrysotile	0	0
Amphibole	0	0



Report No.: 95-01-00043

Sample Identification: MLC-012, Cemetery

EEC Lab No.: 7842

ANALYTICAL INFORMATION:

Sample volume, liters:	1314
Filter type:	MCE, 0.45 micrometers
Total area analyzed, mm ² :	0.0651
Effective filter area, mm ² :	385
Average grid opening area, mm ² :	0.00930
No. of grid openings analyzed:	7
Asbestos concentration, structures/mm ² :	0.0
Analytical sensitivity structures/cc:	0.0045
Asbestos concentration, structures/cc:	*ND
95% confidence interval, structures/cc:	0 - 0.017

* None Detected

NOTE: When less than five (5) asbestos structures are detected, the airborne asbestos concentration is best represented by a range of possible values. Refer to the 95% confidence interval.

ANALYTICAL RESULTS:

<u>Structure Composition</u>	<u>Number of structures of each type</u>				<u>Total</u>
	<u>Fibers</u>	<u>Bundles</u>	<u>Clusters</u>	<u>Matrices</u>	
Chrysotile	0	0	0	0	0
Amphibole	0	0	0	0	0

<u>Structure Composition</u>	<u>Length of asbestos structures</u>	
	<u>< 5 micrometers</u>	<u>≥ 5 micrometers</u>
Chrysotile	0	0
Amphibole	0	0



Report No.: 95-01-00043

Sample Identification: MLC-013, Field Blank

EEC Lab No.: 7843

ANALYTICAL INFORMATION:

Sample volume, liters:	N/A
Filter type:	MCE, 0.45 micrometers
Total area analyzed, mm ² :	0.0651
Effective filter area, mm ² :	385
Average grid opening area, mm ² :	0.00930
No. of grid openings analyzed:	7
Asbestos concentration, structures/mm ² :	0.0
Analytical sensitivity structures/cc:	N/A
Asbestos concentration, structures/cc:	*ND

* None Detected

NOTE: When less than five (5) asbestos structures are detected, the airborne asbestos concentration is best represented by a range of possible values. Refer to the 95% confidence interval.

ANALYTICAL RESULTS:

Structure <u>Composition</u>	<u>Number of structures of each type</u>				<u>Total</u>
	<u>Fibers</u>	<u>Bundles</u>	<u>Clusters</u>	<u>Matrices</u>	
Chrysotile	0	0	0	0	0
Amphibole	0	0	0	0	0

Structure <u>Composition</u>	<u>Length of asbestos structures</u>	
	<u>< 5 micrometers</u>	<u>=> 5 micrometers</u>
Chrysotile	0	0
Amphibole	0	0



Report No.: 95-01-00043

Sample Identification: MLC-014, Field Blank

EEC Lab No.: 7844

ANALYTICAL INFORMATION:

Sample volume, liters:	N/A
Filter type:	MCE, 0.45 micrometers
Total area analyzed, mm ² :	0.0651
Effective filter area, mm ² :	385
Average grid opening area, mm ² :	0.00930
No. of grid openings analyzed:	7
Asbestos concentration, structures/mm ² :	0.0
Analytical sensitivity structures/cc:	N/A
Asbestos concentration, structures/cc:	*ND

* None Detected

NOTE: When less than five (5) asbestos structures are detected, the airborne asbestos concentration is best represented by a range of possible values. Refer to the 95% confidence interval.

ANALYTICAL RESULTS:

Structure <u>Composition</u>	<u>Number of structures of each type</u>				
	<u>Fibers</u>	<u>Bundles</u>	<u>Clusters</u>	<u>Matrices</u>	<u>Total</u>
Chrysotile	0	0	0	0	0
Amphibole	0	0	0	0	0

Structure <u>Composition</u>	<u>Length of asbestos structures</u>	
	<u>< 5 micrometers</u>	<u>≥ 5 micrometers</u>
Chrysotile	0	0
Amphibole	0	0



Report No.: 95-01-00043

Sample Identification: MLC-015, Lab Blank

EEC Lab No.: 7845

ANALYTICAL INFORMATION:

Sample volume, liters:	N/A
Filter type:	MCE, 0.45 micrometers
Total area analyzed, mm ² :	0.0651
Effective filter area, mm ² :	385
Average grid opening area, mm ² :	0.00930
No. of grid openings analyzed:	7
Asbestos concentration, structures/mm ² :	0.0
Analytical sensitivity structures/cc:	N/A
Asbestos concentration, structures/cc:	*ND

* None Detected

NOTE: When less than five (5) asbestos structures are detected, the airborne asbestos concentration is best represented by a range of possible values. Refer to the 95% confidence interval.

ANALYTICAL RESULTS:

Structure <u>Composition</u>	<u>Number of structures of each type</u>				
	<u>Fibers</u>	<u>Bundles</u>	<u>Clusters</u>	<u>Matrices</u>	<u>Total</u>
Chrysotile	0	0	0	0	0
Amphibole	0	0	0	0	0

Structure <u>Composition</u>	<u>Length of asbestos structures</u>	
	<u>< 5 micrometers</u>	<u>≥ 5 micrometers</u>
Chrysotile	0	0
Amphibole	0	0



Report No.: 95-01-00043

Sample Identification: MLC-016, 836 Labon Front Yd.

EEC Lab No.: 7846

ANALYTICAL INFORMATION:

Sample volume, liters:	1206
Filter type:	MCE, 0.45 micrometers
Total area analyzed, mm ² :	0.0651
Effective filter area, mm ² :	385
Average grid opening area, mm ² :	0.00930
No. of grid openings analyzed:	7
Asbestos concentration, structures/mm ² :	0.0
Analytical sensitivity structures/cc:	0.0049
Asbestos concentration, structures/cc:	*ND
95% confidence interval, structures/cc:	0 - 0.018

* None Detected

NOTE: When less than five (5) asbestos structures are detected, the airborne asbestos concentration is best represented by a range of possible values. Refer to the 95% confidence interval.

ANALYTICAL RESULTS:

<u>Structure Composition</u>	<u>Number of structures of each type</u>				
	<u>Fibers</u>	<u>Bundles</u>	<u>Clusters</u>	<u>Matrices</u>	<u>Total</u>
Chrysotile	0	0	0	0	0
Amphibole	0	0	0	0	0

<u>Structure Composition</u>	<u>Length of asbestos structures</u>	
	<u>< 5 micrometers</u>	<u>≥ 5 micrometers</u>
Chrysotile	0	0
Amphibole	0	0



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Report No.: 95-01-00043

METHOD:

The air monitoring cassettes submitted were prepared and analyzed for asbestos structure content in accordance with methods contained in 40 CFR Part 763, Appendix A to Subpart E. A transmission electron microscope equipped with an energy dispersive X-ray analysis unit (EDX) was used in the analysis. The asbestos structures were identified by their morphology, selected area electron diffraction pattern and/or EDX spectrum.

Environment & Energy Consultants, Inc. is accredited in the National Voluntary Laboratory Accreditation Program for Asbestos Fiber Analysis (Laboratory ID Number 1072).

This report may not be used to claim product endorsement by NVLAP or any agency of the U.S. Government.

Susan Barnes: Susan Barnes
Electron Microscopist

Kelly Vaccaro: Kelly Vaccaro
Electron Microscopist

Date Completed: January 13, 1995

Respectfully submitted,

Roman J. Narconis, Jr., Mgr.
Electron Microscopy Lab
Microanalytical Lab

Environment & Energy Consultants, Inc. Electron Microscopy Lab

Report No. 95-01-0043

AIRBORNE SAMPLE COUNT SHEET

EEC Lab No. 7831 Filter: 14 MCE | PC Pore: 0.45 Analyst: SK
Client ID No. MLC-001 Filter Area (mm²) 385 Date 11/195
Instrument ID P300 #1 Grid ID's 219 F2,F4,F6 Volume 1389
Magnification 20,000X GO Area (mm²) 0.0093 Comments _____
Acc. Voltage (kV) 100 No. GO to be analyzed 6

EDAX Disk No.

Grid ID 219 F4 EDAX Disk No.

Struct. B = Bundle M = Matrix NSD = No Structures Detected
Type: C = Cluster F = Fiber NSS = Not Statistically Significant

Asbestos Concentration: 0.0 Structures/mm² NSD Structures/cc
Analytical Sensitivity: 0.0050 Structures/cc

Environment & Energy Consultants, Inc. Electron Microscopy Lab

Report No. 95-01-00043

AIRBORNE SAMPLE COUNT SHEET

EEC Lab No. 7832
Client ID No. MLC-002
Instrument ID 9300#1
Magnification 20,000X
Acc. Voltage (kV) 100

Filter: 14 MCE | PC Pore: 0.45 Analyst: SB
Filter Area (mm²) 385 Date 1/10/95
Grid ID's 219 F8, F10, G1 Volume 1372
GO Area (mm²) 0.0093 Comments _____
No. GO to be analyzed 6

Grid ID 29F8

EDAX Disk No.

Grid ID 219 F10

EDAX Disk No.

Struct. B = Bundle
Type: C = Cluster

M = Matrix
F = Fiber

NSD = No Structures Detected

NSS = Not Statistically Significant

**Asbestos Concentration:
Analytical Sensitivity:**

Environment & Energy Consultants, Inc. Electron Microscopy Lab

Report No. 95-CI-C0043

AIRBORNE SAMPLE COUNT SHEET

EEC Lab No. 7833 Filter: 4 MCE | PC Pore: 0.45 Analyst: SR
Client ID No. MLC-003 Filter Area (mm^2) 385 Date 1/10/95
Instrument ID P300#1 Grid ID's 219 G3,G5,G7 Volume 1416
Magnification 20,000X GO Area (mm^2) 0.0093 Comments _____
Acc. Voltage (kV) 100 No. GO to be analyzed 14

Grid ID 219 G3 EDAX Disk No.

Grid ID 2965 EDAX Disk No.

Struct. Type: B = Bundle C = Cluster **M =** Matrix F = Fiber **NSD =** No Structures Detected
NSS = Not Statistically Significant

Asbestos Concentration: _____ Structures/mm² _____ Structures/cc
Analytical Sensitivity: _____ Structures/cc

Environment & Energy Consultants, Inc. Electron Microscopy Lab

... Report No. 95-01-00043

AIRBORNE SAMPLE COUNT SHEET

EEC Lab No. 7834
Client ID No. MLC-004
Instrument ID P300#1
Magnification 20,000x
Acc. Voltage (kV) 100

Filter: MCE | PC Pore: 0.45 Analyst: *SB*
Filter Area (mm²) 385 Date 1/10/95
Grid ID's 219 G9, H2, H41 Volume 1260
GO Area (mm²) 0.093 Comments _____
No. GO to be analyzed 7

Grid ID 219 G 9

EDAX Disk No.

Grid ID 219 H2

EDAX Disk No.

Struct. B = Bundle M = Matrix NSD = No Structures Detected
Type: C = Cluster F = Fiber NSS = Not Statistically Significant

Asbestos Concentration: _____ Structures/mm² _____ Structures/cc
Analytical Sensitivity: _____ Structures/cc

Environment & Energy Consultants, Inc. Electron Microscopy Lab

Report No. 95-Q1-00043

AIRBORNE SAMPLE COUNT SHEET

EEC Lab No. 78 35 Filter: MCE PC Pore: 0.45 Analyst SB
Client ID No. MLC-005 Filter Area (mm²) 385 Date 1/16/95
Instrument ID P20 C#1 Grid ID's 219 H6, H8, H10 Volume 13.74
Magnification 20,000X GO Area (mm²) 0.0093 Comments _____
Acc. Voltage (kV) 100 No. GO to be analyzed 6

Grid ID 219 H6 **EDAX Disk No.**

Grid ID 219HS EDAX Disk No.

Struct. B = Bundle M = Matrix NSD = No Structures Detected
Type: C = Cluster F = Fiber NSS = Not Statistically Significant

Asbestos Concentration: 0.0 Structures/mm² N80 Structures/cc
Analytical Sensitivity: _____ Structures/cc

Environment & Energy Consultants, Inc. Electron Microscopy Lab

... Report No. 95-01-00043

AIRBORNE SAMPLE COUNT SHEET

EEC Lab No. 7836 Filter: 1 MCE | | PC Pore: 0.45 Analyst: SB
Client ID No. MLC - 006 Filter Area (mm²) 385 Date 1/11/95
Instrument ID P30041 Grid ID's 21911, I3, I5 Volume 1374
Magnification 2,000X GO Area (mm²) 0.0093 Comments _____
Acc. Voltage (kV) 100 No. GO to be analyzed 10

Grid ID 219 I EDAX Disk No.

Grid ID 21913 EDAX Disk No.

Struct. B = Bundle M = Matrix NSD = No Structures Detected
Type: C = Cluster F = Fiber NSS = Not Statistically Significant

Asbestos Concentration: 35.8 Structures/mm² _____ Structures/cc
Analytical Sensitivity: 0.0050 _____ Structures/cc

Environment & Energy Consultants, Inc. Electron Microscopy Lab

Report No. 95-01-00043

AIRBORNE SAMPLE COUNT SHEET

EEC Lab No. 7837 Filter: 1 MCE 1 PC Pore 0.45 Analyst SB
Client ID No. MLC - 007 Filter Area (mm²) 385 Date 11/19/95
Instrument ID P300 # 1 Grid ID's 219 J2 J4, J5c Volume 1374
Magnification 20,000x GO Area (mm²) 0.0093 Comments _____
Acc. Voltage (kV) 100 No. GO to be analyzed (c)

Grid ID 219 J2 EDAX Disk No. 1

Grid ID 219 J4 EDAX Disk No

Struct. Type: B = Bundle C = Cluster **M = Matrix F = Fiber** **NSD = No Structures Detected NSS = Not Statistically Significant**

Asbestos Concentration: 17.9 Structures/mm² Analytical Sensitivity: 0.0050 Structures/cc NSS Structures/cc

**Environment & Energy Consultants, Inc.
Electron Microscopy Lab**

Report No. 95-Q1-00043

AIRBORNE SAMPLE COUNT SHEET

EEC Lab No. 7838 Filter: 14 MCE | PC Pore: C.45 Analyst: SB
Client ID No. MLC - ACS Filter Area (mm²) 385 Date 11/11/95
Instrument ID P2CC#1 Grid ID's 219 JE, JR, K1 Volume 1308
Magnification 20,000X GO Area (mm²) 00093 Comments _____
Acc. Voltage (kV) 100 No. GO to be analyzed (6)

Grid ID 219 JS EDAX Disk No.

Grid ID 219 T/10 EDAX Disk No.

Struct. B = Bundle M = Matrix NSD = No Structures Detected
Type: C = Cluster F = Fiber NSS = Not Statistically Significant

Asbestos Concentration: 17.9 Structures/mm² NSS Structures/cc
Analytical Sensitivity: 0.0050 Structures/cc

Environment & Energy Consultants, Inc. Electron Microscopy Lab

Report No. 95-01-00043

AIRBORNE SAMPLE COUNT SHEET

EEC Lab No. 7839 Filter: 1 MCE | 1 PC Pore: 045 Analyst SB
Client ID No. MLC - 009 Filter Area (mm²) 385 Date 17/11/95
Instrument ID D300#1 Grid ID's 219 K4, K6, K8 Volume 1302
Magnification 20,000X GO Area (mm²) 0.0093 Comments _____
Acc. Voltage (kV) 100 No. GO to be analyzed 7

Grid ID 219 k4 EDAX Disk No.

Grid ID 219K6 EDAX Disk No.

Struct. Type: B = Bundle C = Cluster **M = Matrix F = Fiber** **NSD = No Structures Detected NSS = Not Statistically Significant**

Asbestos Concentration: 0.0 Structures/mm² ND Structures/cc
Analytical Sensitivity: 0.0043 Structures/cc

Environment & Energy Consultants, Inc. Electron Microscopy Lab

Report No. 95-01-00043

AIRBORNE SAMPLE COUNT SHEET

EEC Lab No. 7840 Filter: 1 MCE | PC Pore: 0.45 Analyst KU
Client ID No. MLC-010 Filter Area (mm^2) 385 Date 1/13/95
Instrument ID P300#2 Grid ID's 219 K10 L1 L3 Volume 1359
Magnification 20,000 GO Area (mm^2) 0.0093 Comments _____
Acc. Voltage (kV) 100 No. GO to be analyzed 7

Grid ID 219 K10 EDAX Disk No.

Grid ID Z19 L1 EDAX Disk No.

Struct. B = Bundle M = Matrix NSD = No Structures Detected
 Type: C = Cluster F = Fiber NSS = Not Statistically Significant

Asbestos Concentration: 0.0 Structures/mm² ND Structures/cc
Analytical Sensitivity: 0.0044 Structures/cc

Environment & Energy Consultants, Inc. Electron Microscopy Lab

Report No. 95-01-00043

AIRBORNE SAMPLE COUNT SHEET

EEC Lab No. 7841 Filter: MCE PC Pore: 0.45 Analyst KU
Client ID No. MLC-011 Filter Area (mm²) 385 Date 1/13/95
Instrument ID P300 #7 Grid ID's 219 L5 17 19 Volume 1329
Magnification 20,000 GO Area (mm²) 0.0093 Comments _____
Acc. Voltage (kV) 100 No. GO to be analyzed 6

Grid ID 219 L5 EDAX Disk No.

Grid ID ZIG 1 7 EDAX Disk No.

Struct. B = Bundle M = Matrix NSD = No Structures Detected
Type: C = Cluster F = Fiber NSS = Not Statistically Significant

Asbestos Concentration: NSD Structures/mm² NSD Structures/cc
Analytical Sensitivity: 0.0044 Structures/cc

Environment & Energy Consultants, Inc. Electron Microscopy Lab

Report No. 95-01-00043

AIRBORNE SAMPLE COUNT SHEET

EEC Lab No. 7842 Filter: MCE PC Pore: 0.45 Analyst: KJ
Client ID No. MLC-012 Filter Area (mm²) 385 Date 1/13/95
Instrument ID P 300 #2 Grid ID's 219 M2, M4, M6 Volume 1314
Magnification 20,000 GO Area (mm²) 0.10093 Comments _____
Acc. Voltage (kV) 100 No. GO to be analyzed 6

Grid ID 219 M2 EDAX Disk No.

Grid ID Z19 M4 EDAX Disk No.

Struct. B = Bundle M = Matrix NSD = No Structures Detected
Type: C = Cluster F = Fiber NSS = Not Statistically Significant

Asbestos Concentration: _____ Structures/mm² _____ Structures/cc
Analytical Sensitivity: _____ Structures/cc

Environment & Energy Consultants, Inc. Electron Microscopy Lab

Report No. 95-01-00043

AIRBORNE SAMPLE COUNT SHEET

EEC Lab No. 7843 Filter: MCE PC Pore: 0.45 Analyst XJ
Client ID No. MLC-013 Filter Area (mm²) 385 Date 1/13/94
Instrument ID P 300#2 Grid ID's Z19 M8 M10 N1 Volume N/A
Magnification 20,000 GO Area (mm²) 0.0093 Comments _____
Acc. Voltage (kV) 100 No. GO to be analyzed 7 Field Blank _____

Grid ID Z19 M8 EDAX Disk No.

Grid ID Z19 M10 EDAX Disk No.

Struct. B = Bundle M = Matrix NSD = No Structures Detected
Type: C = Cluster F = Fiber NSS = Not Statistically Significant

Asbestos Concentration: _____ Structures/mm² _____ Structures/cc
Analytical Sensitivity: _____ Structures/cc

Environment & Energy Consultants, Inc. Electron Microscopy Lab

Report No. 95-01-00043

AIRBORNE SAMPLE COUNT SHEET

EEC Lab No. 7844 Filter: 1 MCE | PC Pore: 0.45 Analyst SP
Client ID No. MLC-014 Filter Area (mm²) 385 Date 1/13/95
Instrument ID D300 #1 Grid ID's 219 N7,N9,02 Volume NA
Magnification 20,000x GO Area (mm²) 0.0093 Comments
Acc. Voltage (kV) 100 No. GO to be analyzed 7 Field Blank

Grid ID 219 N7 EDAX Disk No.

Grid ID 31919 EDAX Disk No.

Struct. Type: B = Bundle C = Cluster **M = Matrix F = Fiber** **NSD = No Structures Detected NSS = Not Statistically Significant**

Asbestos Concentration: _____ Structures/mm² _____ Structures/cc
Analytical Sensitivity: _____ Structures/cc

Environment & Energy Consultants, Inc. Electron Microscopy Lab

Report No. 95-01-00043

AIRBORNE SAMPLE COUNT SHEET

EEC Lab No. 7845 Filter: MCE PC Pore: 0.45 Analyst KU
Client ID No. MLC-015 Filter Area (mm²) 385 Date 1/13/95
Instrument ID P300#2 Grid ID's 29 04,06,08 Volume NA
Magnification 20,000 GO Area (mm²) 0.0093 Comments _____
Acc. Voltage (kV) 100 No. GO to be analyzed 7 help Blank

Grid ID. 219 04 EDAX Disk No.

Grid ID 219-06 EDAX Disk No.

Struct. B = Bundle M = Matrix NSD = No Structures Detected
Type: C = Cluster F = Fiber · NSS = Not Statistically Significant

Asbestos Concentration: _____ Structures/mm² _____ Structures/cc
Analytical Sensitivity: _____ Structures/cc

Environment & Energy Consultants, Inc. Electron Microscopy Lab

... Report No. 95-01-00043

AIRBORNE SAMPLE COUNT SHEET

EEC Lab No. 7846 Filter: 1 MCE | 1 PC Pore 0.45 Analyst SB
Client ID No. MLC - 0140 Filter Area (mm^2) 385 Date 1/13/95
Instrument ID P200 #1 Grid ID's 219 00, P1, P3 Volume 120cc
Magnification 22000X GO Area (mm^2) 0.0093 Comments _____
Acc. Voltage (kV) 100 No. GO to be analyzed 7

Grid ID 219010 EDAX Disk No.

Grid ID 21981 EDAX Disk No.

Struct. B = Bundle M = Matrix NSD = No Structures Detected
Type: C = Cluster F = Fiber NSS = Not Statistically Significant

Asbestos Concentration: _____ Structures/mm² _____ Structures/cc
Analytical Sensitivity: _____ Structures/cc



Report No. 95-01-00043A

January 18, 1995

Project: Certainteed / Maline Creek

P.O. No. 99630
TDD #T07-9410-083

Determination of asbestos content by transmission electron microscopy on two (2) air monitoring cassettes submitted on January 6, 1995.

Ecology & Environment, Inc.
Cloverleaf Bldg. 3
6405 Metcalf
Overland Park, KS 66202

Attn: Ms. Audra Gier

TEST REPORT

A total of two (2) samples were collected using air monitoring cassettes with 0.80 micrometer pore size, mixed cellulose ester filters.

The analytical results for the samples submitted are reported on the following pages. The table below contains a summary of results:

SUMMARY OF ANALYTICAL RESULTS:

<u>Sample Identification</u>	<u>E.E.C. Lab No.</u>	<u>Sample Volume (liters)</u>	<u>Asbestos Fibers (Counted)</u>	<u>Asbestos Ratio, %</u>
MLC-004	7834	1260	0	0
MLC-016	7846	1206	0	0

Type Of Asbestos Found: None Detected



Report No.: 95-01-0043A

Sample Identification: MLC-004, West End Commons

EEC Lab No.: 7834

ANALYTICAL INFORMATION:

NIOSH 7402 Method (Asbestos Fibers >5 um, 3:1 aspect ratio)

Sample volume, liters:	1260
Filter type:	MCE, 0.45 micrometers
Total area analyzed, mm ² :	0.3720
Effective filter area, mm ² :	385
Average grid opening area, mm ² :	0.00930
No. of grid openings analyzed:	40
Analytical sensitivity fibers/cc:	0.0008
Asbestos concentration, fibers/cc:	None Detected
Asbestos equivalency ratio, %:	0

ANALYTICAL RESULTS:

Number of fibers of each type

<u>Chrysotile</u>	<u>Amphiboles</u>	<u>Non-Asbestos</u>
0.0	0.0	9.5



Report No.: 95-01-0043A

Sample Identification: MLC-016, 836 Labon Front Yd.

EEC Lab No.: 7846

ANALYTICAL INFORMATION:

NIOSH 7402 Method (Asbestos Fibers >5 um, 3:1 aspect ratio)

Sample volume, liters:	1206
Filter type:	MCE, 0.45 micrometers
Total area analyzed, mm ² :	0.3720
Effective filter area, mm ² :	385
Average grid opening area, mm ² :	0.00930
No. of grid openings analyzed:	40
Analytical sensitivity fibers/cc:	0.0008
Asbestos concentration, fibers/cc:	None Detected
Asbestos equivalency ratio, %:	0

ANALYTICAL RESULTS:

Number of fibers of each type

<u>Chrysotile</u>	<u>Amphiboles</u>	<u>Non-Asbestos</u>
0.0	0.0	1.0



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Report No.: 95-01-00043A

METHOD:

NIOSH 7402 - TEM

The air monitoring cassettes submitted were prepared and analyzed for asbestos structure content in accordance with methods contained in NIOSH Method 7402, NIOSH Manual of Analytical Methods (NMAM), Fourth Ed., 8/15/94. A transmission electron microscope equipped with an energy dispersive X-ray analysis unit (EDX) was used in the analysis. The asbestos structures were identified by their morphology, selected area electron diffraction pattern and/or EDX spectrum.

The analysis results are expressed in percent. This represents a ratio of asbestos fibers found to non-asbestos fibers found in the sample.

Environment & Energy Consultants, Inc. is accredited in the National Voluntary Laboratory Accreditation Program for Asbestos Fiber Analysis (Laboratory ID Number 1072).

This report may not be used to claim product endorsement by NVLAP or any agency of the U.S. Government.

Susan Barnes: Susan Barnes
Electron Microscopist

Kelly Vaccaro: Kelly Vaccaro
Electron Microscopist

Date Completed: January 13, 1995

Respectfully submitted,

Roman J. Narconis, Jr., Mgr.
Electron Microscopy Lab



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NIOSH 7402
TEM SAMPLE COUNT SHEET

Report No. 95-01-00043

ITL Lab No. 7834

Client Sample No. MLC-004

Instrument I.D. EM 300R #2

Magnification 20,000/1

Acc. Voltage 100

Filter Type 0.45 MCA

Filter Area 385

Grid ID's 219 P9 Q2, G

GO Area 0.0093

No. GO to be Analyzed 4

Operator KU

Date 1/13/94

Volume

Volume _____

Grid ID: _____

Disk No.

GO No.	Structure No.	Structure Type	Length		ED Observation			
			< 10 µm	≥ 10 µm	Chrys.	Amph.	Nonasb.	Neg.
219	P9							
1	NSD							
2	NSD							
3	NSD							
4	NSD							
5	1	F	20	0.15			✓	
6	1.5	M	15	2.5			✓	
7	NSD							
8	NSD							
9	NSD							
10	NSD							
11	NSD							
12	NSD							
13	NSD							
14	2.0	F	13.5	1			✓	
14	3.5	M	12.0	0.15			✓	
219	Q2							
15	NSD							
16	4,5	F	5.5	0.2			✓	
17	NSD							
18	NSD							
19	5.5	F	13.5	0.25			✓	
20	NSD							
21	NSD							
22	NSD							
23	NSD							
24	NSD							
29	NSD							
26	NSD							
27	7.5	F	3.5	0.4				
27	6.5	F	5.5	0.5			✓	
28	NSD							

\mathcal{B} = Bundle
 \mathcal{C} = Cluster
 \mathcal{F} = Fiber
 \mathcal{M} = Matrix

NSD = No structures detected

N = No diffraction obtained

GO = Grid Opening

Asbestos Concentration:



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NIOSH 7402
TEM SAMPLE COUNT SHEET

2

Report No. 95-01-00043

ITL Lab No. 7834

Client Sample No. 1854

Instrument I.D. EM 300R #2

Magnification 20,000/1,000

Acc. Voltage 100

Filter Type 0.45 MCE

Filter Area 385 mm²

Grid ID's 219 P9 Q2 Q4

GO Area D 0093 mm²

Operator KU

Date 1/13/95

Volume

Volume _____

Grid ID: _____

Disk No. _____

\mathbf{B} = Bundle
 \mathbf{C} = Cluster
 \mathbf{F} = Fiber
 \mathbf{M} = Matrix

NSD = No structures detected

N = No diffraction obtained

GO = Grid Opening

Asbestos Concentration: _____



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NIOSH 7402
TEM SAMPLE COUNT SHEET

Report No. 45-01-00043

ITL Lab No. 78410

Client Sample No. MCC-010

Instrument I.D. EM 300R #1

Magnification 1,000 - 20,000X

Acc. Voltage 100 KV

Filter Type 0.45 um MCE

Filter Area 385 mm²

Grid ID's 219 Q6, Q8, Q10

GO Area 0.0073 mm²

No. GO to be Analyzed 40

Operator SB

Date 11/13/95

Volume 12010

Grid ID 219 Q6, Q8, Q10

Disk No. _____

GO No.	Structure No.	Structure Type	Length < 10 um	Length >= 10 um	ED Observation	Chrys.	Amph.	Nonasb.	Neg.	EDAX
219	(Q6)									
1	NSD									
2	NSD									
3	NSD									
4	NSD									
5	NSD									
6	NSD									
7	NSD									
8	NSD									
9	NSD									
10	(Q8)									
11	NSD									
12	NSD									
13	NSD									
14	NSD									
219	08									
15	NSD									
16	NSD									
17	NSD									
18	NSD									
19	NSD									
20	NSD									
21	(NSD)									
22	NSD									
23	(NSD)									
24	NSD									
25	5	F	29.0	0.5						✓
26	NSD									
27	NSD									
28	NSD									
29	NSD									
30	NSD									

B = Bundle

C = Cluster

F = Fiber

M = Matrix

NSD = No structures detected

N = No diffraction obtained

GO = Grid Opening

Asbestos Concentration: _____



INDUSTRIAL
TESTING
LABORATORIES

NIOSH 7402

TEM SAMPLE COUNT SHEET

Report No. 95-01-00043 Cont'd.

Report No. 11-00000 ITL Lab No. 7846 Filter Type 0.45 μm MCE

Client Sample No. MLC-016

Instrument I.D. EM 300R #1

Magnification 1000 x

Magnification 1,000 x. 800
Acc. Voltage 180 KV

Acc. Voltage 00 KV

Filter Type 0.45 μm MCE

Filter Area 385

Grid ID's 2190408,010

GRU ID's 81, 82, 83, 84, 85
G3 Area 8-0093

No. GO to be Analyzed 48

No. 60 to be Analyzed 40

Operator SB

operator 37
Date 11

~~DATE~~ - 17,
VOLUME 120

VOLUME 120

Grid ID 21906,08,010

Disk No.

\mathbf{B} = Bundle
 \mathbf{C} = Cluster
 \mathbf{F} = Fiber
 \mathbf{M} = Matrix

NSD = No structures detected
N = No diffraction obtained
GO = Grid Opening
Asbestos Concentration:



Report No. 95-01-00044

January 18, 1995

Project: Certainteed / Maline Creek

P.O. No. 99630
TDD #T07-9410-083

Determination of asbestos content by transmission electron microscopy on twenty-three (23) bulk samples submitted on January 6, 1995.

Ecology & Environment, Inc.
Cloverleaf Bldg. 3
6405 Metcalf
Overland Park, KS 66202

Attn: Ms. Audra Gier

TEST REPORT

<u>Sample Identification</u>	<u>E.E.C. Lab No.</u>	<u>Residue After Ashing</u>	<u>Residue After Acid Extraction</u>	<u>Asbestos Concentration</u>
MLC-017	7847	84.4%	78.5%	None Detected, Less Than 1% If Present
MLC-018	7848	59.9%	51.6%	Chrysotile, Trace, Less Than 1%
MLC-019	7849	84.1%	52.9%	Chrysotile, Greater Than 1%
MLC-020	7850	84.2%	79.3%	Chrysotile, Trace Less Than 1%
MLC-021	7851	75.8%	69.5%	None Detected, Less Than 1% If Present



<u>Sample Identification</u>	<u>E.E.C. Lab No.</u>	<u>Residue After Ashing</u>	<u>Residue After Acid Extraction</u>	<u>Asbestos Concentration</u>
MLC-022	7852	92.9%	90.2%	None Detected, Less Than 1% If Present
MLC-023	7853	84.6%	80.5%	None Detected, Less Than 1% If Present
MLC-024	7854	50.2%	44.0%	Chrysotile, Trace Less Than 1%
MLC-025	7855	85.6%	81.0%	Chrysotile, Trace Less Than 1%
MLC-026	7856	93.6%	90.2%	Chrysotile, Trace Less Than 1%
MLC-027	7857	86.8%	84.0%	Chrysotile, Trace Less Than 1%
MLC-028	7858	96.3%	85.7%	None Detected, Less Than 1% If Present
MLC-029	7859	97.1%	94.6%	None Detected, Less Than 1% If Present



<u>Sample Identification</u>	<u>E.E.C. Lab No.</u>	<u>Residue After Ashing</u>	<u>Residue After Acid Extraction</u>	<u>Asbestos Concentration</u>
MLC-030	7860	95.0%	92.4%	None Detected, Less Than 1% If Present
MLC-031	7861	88.5%	86.4%	None Detected, Less Than 1% If Present
MLC-032	7862	84.8%	81.9%	None Detected, Less Than 1% If Present
MLC-033	7863	96.7%	84.2%	None Detected, Less Than 1% If Present
MLC-034	7864	92.1%	84.6%	None Detected, Less Than 1% If Present
MLC-035	7865	87.2%	81.9%	None Detected, Less Than 1% If Present
MLC-036	7866	84.4%	80.9%	Chrysotile, Trace Less Than 1%
MLC-037	7867	69.7%	63.7%	None Detected, Less Than 1% If Present



<u>Sample Identification</u>	<u>E.E.C. Lab No.</u>	<u>Residue After Ashing</u>	<u>Residue After Acid Extraction</u>	<u>Asbestos Concentration</u>
MLC-038	7868	98.8%	94.8%	None Detected, Less Than 1% If Present
MLC-039	7869	73.5%	42.3%	Chrysotile, Greater Than 1%

Analysis conducted in accordance with SOP-1988-02 Rev. 1; Analysis of Resilient Floor Tile by Eric J. Chatfield.

Susan Barnes: Susan Barnes
Electron Microscopist

Roman J. Narconis: Roman J. Narconis Jr.
Electron Microscopist

Kelly Vaccaro: Kelly Vaccaro
Electron Microscopist

Date Completed: January 12, 1995

Respectfully submitted,

Roman J. Narconis Jr.
Roman J. Narconis, Jr., Mgr.
Electron Microscopy Lab
Microanalytical Lab



ENVIRONMENT & ENERGY CONSULTANTS inc.

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Report No. 95-01-00045

January 12, 1995

P.O. No. 99630
TDD #T07-9410-083

Ecology & Environment, Inc.
Cloverleaf Bldg. 3
6405 Metcalf
Overland Park, KS 66202

Attn: Ms. Audra Gier

Included in this report are test results obtained on two (2) bulk samples submitted on January 6, 1995.

The following information was provided by the client:

Project: Certainteed / Maline Creek

The results are presented as follows:

Exhibit A: Summary of material concentrations reported as a percentage of the entire sample submitted.

Exhibit B: Layer analysis reported separately with microscopist observations and comments

Exhibits A and B should be evaluated for each sample submitted to obtain a complete understanding of analysis performed.

The United States Environmental Protection Agency defines any sample containing greater than one (1) percent asbestos as an asbestos-containing material (ACM) (40 CFR Part 763). Samples determined to have asbestos concentrations greater than one (1) percent are identified in the test results as asbestos-containing materials.

Material content is determined using polarized light microscopy with dispersion staining in accordance with 40 CFR 763, Appendix A to Subpart F, "Interim Method of the Determination of Asbestos in Bulk Insulation Samples," and all current revisions.



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Report No. 95-01-00045

Results reported as trace indicate constituents found at concentrations of less than one (1) percent.

Environment & Energy Consultants, Inc. is accredited in the National Voluntary Laboratory Accreditation Program for Asbestos Fiber Analysis (Laboratory ID Number 1072).

This report may not be used to claim product endorsement by NVLAP or any agency of the U.S. Government.

This test report relates only to the item tested.

Analysis By:

Sue Ferrario: Sue Ferrario
Microanalyst

Analysis Completed: January 11, 1995

Respectfully submitted,

William J. Lowry
William J. Lowry, CIH
Vice President, Operations

Lab No.: 7870 - 7871

SF/nm



Section I of Two Sections
Summary

Analyst's Approval : [X]

Client: Ecology & Environment, Inc.
Report Number: 95-01-00045

TEST REPORT

EEC Number Sample Identification

7870	MLC-020, 1/5/95, Soil		
	Asbestos, Chrysotile	Trace	
	Cellulose	1-3%	
	Mineral Wool	1-3%	
	Unspecified Non-Fibrous Mat'l	Greater than 95%	
7871	MLC-025, 1/5/95, Soil		
	No asbestos detected (less than 1% if present)		
	Cellulose	5-10%	
	Mineral Wool	1-3%	
	Unspecified Non-Fibrous Mat'l	80-90%	



Section II of Two Sections
Individual Layer Analysis

Analysts's Approval: []

Client: Ecology & Environment, Inc.
Report Number: 95-01-00045

EEC Number: 7870
Identification: MLC-020, 1/5/95, Soil
Dominant Color: Brown
Gross Sample Appearance: Homogeneous, Non-Fibrous
Sample Type: Dirt

Layer Number: 1 General Description: Powder
Percent of Total Sample: 100%

Material Content

Asbestos, Chrysotile	Trace
Cellulose	1-3%
Mineral Wool	1-3%
Unspecified Non-Fibrous Material	Greater than 95%



Section II of Two Sections
Individual Layer Analysis

Analysts's Approval: [SF]

Client: Ecology & Environment, Inc.
Report Number: 95-01-00045

EEC Number: 7871
Identification: MLC-025, 1/5/95, Soil
Dominant Color: Brown
Gross Sample Appearance: Homogeneous, Non-Fibrous
Sample Type: Dirt

Layer Number: 1 General Description: Powder
Percent of Total Sample: 100%

Material Content

No asbestos detected (less than 1% if present)	
Cellulose	5-10%
Mineral Wool	1-3%
Unspecified Non-Fibrous Material	80-90%

Observations & comments: A portion of the sample was ashed for analysis.



ENVIRONMENT & ENERGY CONSULTANTS inc.

- INDUSTRIAL HYGIENE
- ENGINEERING
- MICROSCOPY
- CHEMISTRY
- SAFETY

Report No.: 95-01-00046

January 18, 1995

P. O. No. 99630
TDD #T07-9410-083

Determination of fiber content on two (2) air cassettes submitted.

Ecology & Environment, Inc.
Cloverleaf Bldg. 3, 6405 Metcalf
Overland Park, KS 66202

Attn: Ms. Audra Gier

Dear Ms. Gier,

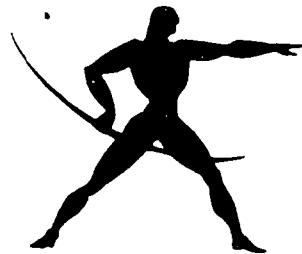
Attached please find Test Report (ITL 95-01-00036) for samples submitted to Environment & Energy Consultants Inc. on January 6, 1995. The samples were submitted to Industrial Testing Laboratories, Inc. for analysis in accordance with NIOSH Method 7400, "Fibers", Revision #3, Mayn 1989.

If there are any questions, or need of additional information, please contact me at (314) 771-4436.

Respectfully submitted,

William J. Lowry, CIH
Vice President, Operations

WL/bjk



INDUSTRIAL
TESTING
LABORATORIES
inc.

2350 S. Seventh Street • St. Louis, Missouri 63104-4296
Report: 95-01-00036

Project: Certainteed/Maline Creek

Chemical Analysis

Materials Testing

Environmental Evaluation

314/771-7111

314/771-9573 FAX

January 11, 1995

P. O. No. 99630

TDD #T07-9410-083

Determination of the fiber content on two (2) air cassettes submitted.

Ms. Audra Gier
Ecology & Environment, Inc.
Cloverleaf Bldg. 3, 6405 Metcalf
Overland Park, KS 66202

TEST REPORT

ITL Number	Volume (Liters)	Fibers Counted	Fields Counted	Density (fibers/mm ²)	Concentration (fibers/cc)
148998	1260	2.0	100	2.5	<0.0010
148999	1206	4.5	100	5.7	0.0018

Counting was performed at 400X using Phase Contrast Microscopy in accordance with NIOSH Method 7400, "Fibers", Revision #3, May 1989.

PCM provides an index of airborne fibers. The quantitative working range is 0.04 to 0.5 fibers/cc for a 1000-L air sample. The Limit of Detection depends on sample volume and the quantity of interfering dust, and is less than 0.01 fiber/cc for atmospheres free of interferences. PCM is primarily used for estimating asbestos concentrations, although it does not differentiate between asbestos and other fibers. Fibers less than approximately 0.25 micrometers will not be detected by this method.

Comparability of interlaboratory results can be approximated at 213% above and 49% below the count as the upper and lower confidence limits for fiber counts greater than 20.

Analyst: D. RL

Respectfully submitted,

Analysis Completed: 1/10/95

William J. Lowry

William J. Lowry, CIH
Industrial Hygiene Manager

165452



INDUSTRIAL
TESTING
LABORATORIES
inc.

2350 S. Seventh Street

• St. Louis, Missouri 63104-4296

Chemical Analysis

Materials Testing

Environmental Evaluation

314/771-7111

314/771-9573 FAX

Report: 95-01-00036

SAMPLE INDEX

Sample Identification

ITL Number

148998 MLC004, 1/5/95, West Enc. Commons, Background

148999 MLC-016, 1/5/95, 836 Laon Front Yd., Background